What is claimed is:

1. A method of discriminating speech from voice-band data in a communication network, comprising:

calculating at least one of a self similarity ratio value, representing a periodicity characteristic, and an autocorrelation coefficient value, representing a spectral characteristic, for an input signal segment; and

determining whether said input signal segment is speech or voice-band data based on said at least one of said self similarity value and said autocorrelation coefficient value.

2. The invention as defined in claim 1, wherein said input signal segment is a frame of N samples.

3. The invention as defined in claim 1, wherein

said calculating step calculates a first self similarity ratio value, corresponding to a first sample delay, as a first periodicity characteristic value; and

said determining step determines that said input signal segment is voice-band data if said first self similarity ratio value is greater than a first similarity threshold.

4. The invention as defined in claim 3, wherein

said calculating step calculates a second self similarity ratio value, corresponding to a second sample delay, as a second periodicity characteristic value, said second sample delay being greater than said first sample delay; and

said determining step determines that said input signal segment is speech if said second self similarity ratio value is greater than a second similarity threshold.

5. The invention as defined in 1, wherein

said calculating step calculates a first autocorrelation coefficient as a first spectral characteristic value; and

said determining step determines that said input signal segment is voice-band data if said first autocorrelation coefficient is less than a first autocorrelation threshold, and that said input signal segment is speech if said first autocorrelation coefficient is greater than a second autocorrelation threshold, said second autocorrelation threshold being greater than said first autocorrelation threshold.

6. The invention as defined in claim 5, wherein

said calculating step calculates second and third autocorrelation coefficients as second and third spectral characteristic values respectively, and

said determining step determines that said input signal segment is voice-band data if said second autocorrelation coefficient is less than a third autocorrelation threshold or said third autocorrelation coefficient is less than a fourth autocorrelation threshold.

7. The invention as defined in claim 6, wherein

said determining step determines that said input signal segment is voice-band data if a sum of said second autocorrelation coefficient and said third autocorrelation coefficient is less than a fifth autocorrelation threshold.

8. The invention as defined in claim 1, wherein

said calculating and determining steps are performed for a plurality of input signal segments in accordance with a sequential decision logic sequence which designates input signal segments as speech during a

speech state and designates input signal segments as voice-band data during a voice-band data state.

9. The invention as defined in claim 8, wherein

said sequential decision logic sequence switches from said speech state to said voice-band data state when results of said determining step for a plurality of input signal segments indicate that said speech state is erroneous, and

said sequential decision logic sequence switches from said voice-band data state to said speech state when results of said determining step for a plurality of input signal segments indicate that said voice-band data state is erroneous.

10. The invention as defined in claim 8, wherein

results of said determining step are weighted based on energy content of the corresponding input signal segment so that determination results for low energy input signal segments are given relatively low weight when determining whether to switch from said speech state to said voice-band data state or from said voice-band data state to said speech state.

11. An apparatus for discriminating speech from voice-band data in a communication network, comprising:

calculating means for calculating at least one of a self similarity ratio value, representing a periodicity characteristic, and an autocorrelation coefficient value, representing a spectral characteristic, for an input signal segment; and

determining means for determining whether said input signal segment is speech or voice-band data based on said at least one of said self similarity value and said autocorrelation coefficient value.

12. The invention as defined in claim 11, wherein said input signal segment is a frame of N samples.

13. The invention as defined in claim 11, wherein

said calculating means calculates a first self similarity ratio value, corresponding to a first sample delay, as a first periodicity characteristic value; and

said determining means determines that said input signal segment is voice-band data if said first self similarity ratio value is greater than a first similarity threshold.

14. The invention as defined in claim 13, wherein

said calculating means calculates a second self similarity ratio value, corresponding to a second sample delay, as a second periodicity characteristic value, said second sample delay being greater than said first sample delay; and

said determining means determines that said input signal segment is speech if said second self similarity ratio value is greater than a second similarity threshold.

15. The invention as defined in 11, wherein

said calculating means calculates a first autocorrelation coefficient as a first spectral characteristic value; and

said determining means determines that said input signal segment is voice-band data if said first autocorrelation coefficient is less than a first autocorrelation threshold, and that said input signal segment is speech if said first autocorrelation coefficient is greater than a second autocorrelation threshold, said second autocorrelation threshold being greater than said first autocorrelation threshold.

16. The invention as defined in claim 15, wherein

said calculating means calculates second and third autocorrelation coefficients as second and third spectral characteristic values respectively, and

said determining means determines that said input signal segment is voice-band data if said second autocorrelation coefficient is less than a third autocorrelation threshold or said third autocorrelation coefficient is less than a fourth autocorrelation threshold.

17. The invention as defined in claim 16, wherein

said determining means determines that said input signal segment is voice-band data if a sum of said second autocorrelation coefficient and said third autocorrelation coefficient is less than a fifth autocorrelation threshold.

18. The invention as defined in claim 11, wherein

said apparatus classifies a plurality of input signal segments as being either speech or voice-band data in accordance with a sequential decision logic sequence which designates input signal segments as speech during a speech state and designates input signal segments as voice-band data during a voice-band data state.

19. The invention as defined in claim 18, wherein

said apparatus, in accordance with said sequential decision logic sequence, switches from said speech state to said voice-band data state when results of said determining means for a plurality of input signal segments indicate that said speech state is erroneous, and

said apparatus, in accordance with said sequential decision logic sequence, switches from said voice-band data state to said speech state

when results of said determining means for a plurality of input signal segments indicate that said voice-band state is erroneous.

20. The invention as defined in claim 18, wherein

said apparatus weights results of said determining means based on energy content of the corresponding input signal segment so that determination results for low energy input signal segments are given relatively low weight when said apparatus judges whether to switch from said speech state to said voice-band data state or from said voice-band data state to said speech state.